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COVID-19 "Delta" Variant: Why Should We Care?

Variante “Delta” del COVID-19: ¿Por qué debemos preocuparnos?

Genetic mutations provide mechanisms that allow viruses to adapt to a new host and avoid its immune responses. Currently, various variants of SARS-Cov-2 have been reported, based on evaluations of their genetic mutations, which have been named by the World Health Organization, among others, as variants of concern (1).

Within these variants, the so-called "Delta" variant (Lineage B.1.617.2), has two mutations (E484Q and L452R) that allow it to be more bound to ACE2 and to evade the immune system. Initially, variant B.1.617.2 was considered as transmissible as variant B.1.1.7, however, it is suggested that this variant may be more than 60% more transmissible than variant Alpha (2).

The resolution of SARS-CoV-2 and COVID-19 infection may depend on the responses of CD4 + and CD8 + T cells, which also play a role in modulating the severity of the disease (3, 4).

Given this, in convalescent individuals, T-cell immunity is not restricted to spike-derived epitopes and, therefore, it would be reasonable to assume that it would remain largely intact for the new variants (5).

However, in recipients of available vaccines, where protein S is the target immunogen, T cell immunity is limited to spike epitopes (6).

Therefore, the goal of genetic studies is to determine whether new variant mutations in these epitopes affect T-cell responses in a similar way to the escape of neutralizing antibodies.

The concern that these mutations imply is the emergence of a third wave in the COVID-19 pandemic, associated with this new variant. As of July 2021, approximately 4 cases of this variant have been identified in the cities of Lima and Arequipa, so preventive measures have already been taken to detect and surround suspected cases and contacts with positive patients.

The impact that this variant may have on the progress of the fight against the pandemic is still unknown, as well as the effect between vaccinated patients and those who have yet to immunize.

References

1. Wall EC, Wu M, Harvey R, Kelly G, Warchal S, Sawyer C, et al. Neutralising antibody activity against SARS-CoV-2 VOCs B.1.617.2 and B.1.351 by BNT162b2 vaccination. Lancet. 2021;397(10292):2331-3. doi:10.1016/s0140-6736(21)01290-3.
2. Lustig Y, Zuckerman N, Nemet I, Atari N, Kliker L, Regev-Yochay G, et al. Neutralising capacity against Delta (B.1.617.2) and other variants of concern following Comirnaty (BNT162b2, BioNTech/Pfizer) vaccination in health care workers, Israel. Euro Surveill. 2021;26(26). doi:10.2807/1560-7917.Es.2021.26.26.2100557.
3. Lazarevic I, Pravica V, Miljanovic D, Cupic M. Immune Evasion of SARS-CoV-2 Emerging Variants: What Have We Learnt So Far? Viruses. 2021;13(7). doi:10.3390/v13071192.
4. Liu J, Liu Y, Xia H, Zou J, Weaver SC, Swanson KA, et al. BNT162b2-elicited neutralization of B.1.617 and other SARS-CoV-2 variants. Nature. 2021. doi:10.1038/s41586-021-03693-y.
5. Focosi D, Tuccori M, Baj A, Maggi F. SARS-CoV-2 Variants: A Synopsis of In Vitro Efficacy Data of Convalescent Plasma, Currently Marketed Vaccines, and Monoclonal Antibodies. Viruses. 2021;13(7). doi:10.3390/v13071211.
6. Campbell F, Archer B, Laurenson-Schafer H, Jinnai Y, Konings F, Batra N, et al. Increased transmissibility and global spread of SARS-CoV-2 variants of concern as at June 2021. Euro Surveill. 2021;26(24). doi:10.2807/1560-7917.Es.2021.26.24.2100509.

Conflicts of Interest: None.

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